DECLARATION OF STEVEN J. WANTLING

I, Steven J. Wantling, hereby declare:

1. My home address is 641 Founders Park Drive West, Hoover, Alabama, 35226;

2. I am an inventor for the subject U.S. Patent Application having the serial number 10/528,471 as well as the US Provisional Patent Application having the serial number 60/435,329 which was filed on December 20, 2002.

3. The U.S. Patent Application having the serial number 10/528,471claims benefit of the US Provisional Patent Application having the serial number 60/435,329.

4. The use of a "C_{24}-C_{36} polymerized methylene coupled alkyl phenol" is disclosed in both the 10/528,471 application and the 60/435,329 application.

5. The use of a "C_{24}-C_{36} polymerized methylene coupled alkyl phenol," referred to in the laboratory vernacular of the time as "alkyl phenol" in an application consistent with the present application was made at least as early as November 8, 2001. I attach copies of my lab book pages showing the work that was done with these compounds.

6. I am an inventor of U.S. Patent No. 7,294,189and of the application having Serial Number 60/417,770.

7. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any registration resulting therefrom.

Signed:

Steven J. Wantling
Date: 15 MAY 2009

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PROJECT NAME Duplicate Ga production NOTEBOOK NO. 2542

11-8-01

Objective: Make 109-1 (EW102) using formula from Ga. plant

Procedure: Material added in the following order

Wax side:

Montanwax	18
Alkyl phenol	3
3816 Wax	201

Water side:

Water	352.5
Corn Starch	9.75
Borax	2.25
Sodium Lig	9
KOH (45%)	4.5
	600

1. The material was added one at a time in the order that they are listed.
2. When both mixtures (wax side & water side) reached ~ 87°C (190 F) the wax was poured into water
   a- The water & starch were mixed and slowly heated to ~ 80c with stirring then the Borax, Lig & KOH was added. With stirring mixture was continued heating to 85C
3. The premix was stirred together for 5 min then placed in hot oven while homogenizer was getting ready
4. Premix put thru homogenizer with pressure setting 2nd stage - 400 / 1st stage 3700 lbs

SIGNATURE Bonnie S. Zepka DATE 11-8- 2001
READ AND UNDERSTOOD DATE: 20

PROJECT NAME Optimize Components in EW102 NOTEBOOK NO. 2542

2/13/02

Objective: ① Reproduce the stable emulsion which Columbus Inc made 1/3/02 as reported by James Ziring.
② Vary ratio to optimize different components in EW102

Procedure: Weigh wax phase heat to 85°C - 90°C
Weigh water phase, add corn starch & Borax, heat to 85°C
pour wax phase into water phase under agitation.
Mix 5 min
Put through bench homogenizer 3500 psi X 1

Raw Material	EW 102 (43-1) %	EW 102 (43-1) gms	SA (43-2) %	SA (43-2) gms	SB (43-3) %	SB (43-3) gms	SC (43-4) %	SC (43-4) gms
Montan	3.28	13.12	3.3	13.2	3.3	13.2	3.3	13.2
38 Deg Wax	33.11	132.44	25	100	33	132	33	132
Alkyl Phenol 3MH	0.49	1.96	10	40	0	0	0.5	2
Water phase								
Water	58.54	234.16	57.12	228.48	59.1	236.4	60.08	240.32
Corn Starch	1.6	6.4	1.6	6.4	1.6	6.4	1.6	6.4
Borax	0.37	1.48	0.37	1.48	0.37	1.48	0.37	1.48
Sodium Silicate	1.48	5.92	1.48	5.92	1.5	6	0	0
45% KOH	0.74	2.96	0.74	2.96	0.74	2.96	0.75	3
Metasol D3TA	0.39	1.56	0.39	1.56	0.39	1.56	0.4	1.6
	100	400	100	400	100	400	100	402
Viscosity	VG		Solid, crumbly when cooled		soft solid, grainy when cooled		VG	

Made 2/14/02 read 2/19/02

GYPSUM	Sample	Diameter	Wt after drying	Wt after 2hr soak	% Abs
National	Blank	2 1/2	50.08	67.47	17.39
National	43-1 EW 102 (1.5%)	NP	51.43	65.64	27.63
National	43-1 EW 102 (3%)	NP	51.56	53.73	4.20
National	43-4 SC (1.5%)	NP	51.44	72.77	41.47
National	43-4 SC (3%)	NP	53.02	72.45	36.65
GP	Blank	3 1/2	47.71	63.51	33.12
GP	43-1 EW 102 (3%)	1 3/4	53.02	62.85	18.54
GP	43-4 SC (3%)	NP	52.57	67.16	27.75
Temple	Blank	3 1/2	47.02	61.94	14.92
Temple	43-1 EW 102 (3%)	1 3/4	48.23	56.69	17.54
Temple	43-4 SC (3%)	3/4	50.05	64.39	28.65
LaFarge	Blank	4	45.88	63.96	39.41
LaFarge	43-1 EW 102 (3%)	2	48.78	52.36	7.34
LaFarge	43-4 SC (3%)	3/4	50.05	64.39	28.65

SIGNATURE Bonnie J. Zepka DATE 2-13 20 02
READ AND UNDERSTOOD DATE 20

44

2-13-02

PROJECT NAME Optimize components in EW102 NOTEBOOK NO. 2542

Continued from p 43

Objective: Optimize the different components in EW102

Procedure: Make EW102 in manual mixer)

Put thru bench homogenizer 3500 X1

Raw Material	SD (44-1)		SE (44-2)		SF (44-3)		SG (44-4)	
Wax phase:	%	gms	%	gms	%	gms	%	gms
Monten	3.3	13.2	3.3	13.2	3.3	13.2	3.3	13.2
3810D Wax	33	132	33	132	33	132	25.12	100.48
Alkyl Phenol	0	0	0.58	2.32	0.5	2	6	24
Water phase:								
Water	60.58	242.32	60	240	61.15	244.6	60	240
Corn Starch	1.6	6.4	1.6	6.4	0.8	3.2	1.2	4.8
Borax	0.37	1.48	0.37	1.48	0.15	0.6	0.28	1.12
Sodium Lignosulfonate	0	0	0	0	0	0	3	12
45% KOH	0.75	3	0.75	3	0.75	3	0.75	3
Metsol D3TA	0.49	1.6	0.4	1.6	0.35	1.4	0.35	1.4
	100	400	100	400	100	400	100	100
Viscosity	VG		VG		Top & bottom separation when cooled		solid grainy didn't make an emulsion	

Made 2/14/02 read 2/19/02

GYPSUM	Sample	Diameter	Wt after drying	Wt after 2 hr soak	% Abs
National	Blank	2 1/2	50.08	67.47	17.39
National	44-1 SD (1.5%)	NP	49.17	67.71	37.71
National	44-1 SD (3%)	NP	53.28	60.48	13.51
National	44-2 SE (1.5%)	NP	51.41	71.89	39.84
National	44-2 SE (3%)	NP	51.49	69.87	35.7
GP	Blank	3 1/2	47.71	63.51	33.12
GP	44-1 SD (3%)		51.24	55.39	8.09
GP	44-2 SE (3%)	NP	52.19	55.83	6.97
Temple	Blank	3 1/2	47.02	61.94	14.92
Temple	44-1 SD (3%)	1	48.28	59.51	23.26
Temple	44-2 SE (3%)	1	48.53	60.79	25.26
LaForge	Blank	4	45.88	63.96	39.41
LaForge	44-1 SD (3%)	1	48.28	59.51	23.26
LaForge	44-2 SE (3%)	1	48.53	60.79	25.26

SIGNATURE Bonnie S Zgepka DATE 2-13 20 02

READ AND UNDERSTOOD DATE 20

46

PROJECT NAME Optimize EW102 NOTEBOOK NO. 2543

2-18-02

Objective: Vary ratios of components in EW102 to optimize and create a more stable system.
Repeat of experiment 2-13-02 p 43 & 44
Procedure: Make EW102 in usual manner put through bench homogenizer 3500X 7

Raw Material	EW102		SC		SD		SE	
Wax phase	46-1		46-2		46-3		46-4	
	%	gms	%	gms	%	gms	%	gms
Montan	3.28	19.68	3.3	19.8	3.3	19.8	3.3	19.8
3816D wax	33.11	198.66	.33	148	33	198	33	198
Octyl Phenol	0.49	2.94	0.5	3	0	0	0.58	3.48
water phase								
Water	58.54	351.24	60.08	360.48	60.58	363.48	60	360
Corn Starch	1.6	9.6	1.6	9.6	1.6	9.6	1.6	9.6
Borax	0.37	2.22	0.37	2.22	0.37	2.22	0.37	2.22
Sodium Lig	1.48	8.88	0	0	0	0	0	0
45% KOH	0.74	4.44	0.75	4.5	0.75	4.5	0.75	4.5
Metasol D3TA	0.39	2.34	0.4	2.4	0.4	2.4	0.4	2.4
	100	600	100	600	100	600	100	600
Solids	41.46		47.80			38.86		38.84
pH	11.21		12.19			12.17		12.12

GYPSUM	Sample	Diameter	Wt after drying	Wt after 2hr soak	% Abs
National	46-2 SC (1.5%)	NP	50.19	65.82	31.14
National	46-2 SC (3%)	NP	51.37	62.49	21.65
National	46-3 SD (1.5%)	NP	51.37	70.58	37.10
National	46-3 SD (3%)	NP	49.73	51.69	3.94
National	46-4 SE (1.5%)	NP	52.29	63.65	21.72
National	46-4 SE (3%)	NP	51.52	56.05	8.79
National	(46-1)EW 102 (1.5%)	NP	50.65	64.36	27.07
National	(46-1) EW 102 (3%)	NP	51.71	56.73	9.71
LaFarge	46-2 SC (1.5%)	NC	48.34	52.68	8.98
LaFarge	46-2 SC (3%)	2	45.99	47.83	4.00
LaFarge	46-3 SD (1.5%)	2	50.62	65.14	29.22
LaFarge	46-3 SD (3%)	2	51.21	51.63	0.80
LaFarge	46.4 SE (1.5%)	2	48.82	59.39	21.65
LaFarge	46-4 SE (3%)	NC	49.04	49.32	0.57
LaFarge	(46-1) EW102 (1.5%)	3	46.65	56.78	21.71
LaFarge	(46-1) EW102 (3%)	3	49.79	58.23	16.95

SIGNATURE Bonnie S. Zepka DATE 2-18 2002
READ AND UNDERSTOOD _____ DATE _____ 20__

87

PROJECT NAME Higher Wax solids in EW102 NOTEBOOK NO. 254

5-31-02

Objective: Investigate effect of higher wax solids in the EW102. (3% vs 38%)

Procedure: Mix the following material in the usual manner

Heat to 90 °C

Put wax into water, mix for 8min

Put three bench homogenizer @ 3500 RPM

	87-1		87-2		87-2A *	
	38% wax / Ethyl Stearic		38% wax / acid Stearic		38% wax / acid Stearic	
	%	gms	%	gms	%	gms
3816 D	38	304	38	304	38	304
Montan	3.3	26.4	3.3	26.4	3.3	26.4
Alkyl Phenol	0.5	4.0	0.5	4.0	0.5	4.0
Sodium Lig	1	8.0	1	8.0	1	8.0
45% KOH	0.75	6.0	0.75	6.0	0.75	6.0
Borax	0.37	2.96	0.37	2.96	0.37	2.96
K20 Ethy Stearic	1.6	12.8	—	—	—	—
C150 acid Stearic	—	—	1.6	12.8	1.6	12.8
Water	54.08	432.64	54.08	432.64	54.08	432.64
Metasulf	0.4	3.20	0.4	3.20	0.4	3.2
				800		800

* 87-2 solids were high, repeated in order to have correct solids

GYPSUM	Sample	Diameter	Wt after drying	Wt after 2hr soak	% Abs
LaFarge	Blank	3 1/2	47.35	66.99	41.48
LaFarge	87-1(@5%)	3 1/2	45.9	49.45	7.73
LaFarge	87-1(3%)	3 1/4	43.79	44.26	1.07
LaFarge	87-2 (1.5%)38 % wax	3 1/2	49.76	55.69	11.92
LaFarge	87-2 (3%)38 % wax	3 1/2	50.54	57.81	14.38
LaFarge	87-2A (1.5%)38 % wax	3 1/2	44.8	51.42	14.78
LaFarge	87-2A (3%)38 % wax	3 1/2	46.96	50.64	7.84
Stony Point	Blank	2 1/2	50.61	70	38.31
Stony Point	87-2 (1.5%)38 % wax	2	50.67	62.95	24.24
Stony Point	87-2 (3%)38 % wax	2	47.42	49.59	4.59
Stony Point	87-2A (1.5%)38 % wax	1 3/4	49.8	64.65	29.82
Stony Point	87-2A (3%)38 % wax	1 3/4	52.86	58.59	10.84
Temple	Blank	3 3/4	49.23	66.79	35.67
Temple	87-2 (1.5%)38 % wax	3 1/2	52.6	66.53	26.48
Temple	87-2 (3%)38 % wax	3 1/2	48.64	61.13	25.68
Temple	87-2A (1.5%)38 % wax	3 1/4	46.96	50.64	7.84
Temple	87-2A (3%)38 % wax	3 1/4	49.26	51.04	3.61
National	Blank	3 1/4	45.76	64.39	40.71
National	87-1(3%)	2	48.75	53.06	8.84
National	87-2(3%)	2	53.06	57.84	9.01
National	87-2 (1.5%)38 % wax	2 1/4	50.82	63.9	25.74
National	87-2 (3%)38 % wax	2	51.51	57.74	12.09
National	87-2(1.5%)	2	48.92	49.34	0.86
National	87-2(3%)	2	49.17	49.16	-0.02
National	87-2A (1.5%)38 % wax	2	49.07	57.57	17.32
National	87-2A (3%)38 % wax	2	50.98	59.29	16.30

SIGNATURE Bernie S. Zlpka DATE 5-31 20 02

READ AND UNDERSTOOD _____ DATE _____ 20 ___

109

PROJECT NAME Optimum level of KOH/metasol/Na Lig NOTEBOOK NO. 2542

8/21/02

Objective: Determine the optimum level of KOH/metasol/lignosulfate

Procedure: Mix the following material in usual manner
Put thru pilot homogenizer at 3500 X 1
Put pressure on before putting in premix

	109-1 0.4 KOH back add metasol		109-2 3% Light KOH		109-3 330 RS 33% wax/acid Starch	
	%	gms	%	gms	%	gms
3816 Wax	33	297	33	297	33	297
Water	3.3	29.70	3.3	29.7	3.3	29.7
20K Phenol	0.5	4.50	0.5	4.50	0.5	4.50
Na-Lig	1.0	9.0	1.0	27.0	1.0	9.0
45% KOH	0.08	3.6	0.40	3.6	0.75	6.75
Borax	0.37	3.33	0.37	3.33	0.37	3.33
Penn C	1.6	14.40	1.6	14.4	—	—
C-150	—	—	—	—	1.6	14.4
Water	59.48	535.32	57.6	518.4	59.08	531.72
Metasol	0.4	3.60	0.4	3.6	0.4	3.6
	100	900.45	100	900	100	900
pH	became solid before it cooled & before metasol added		11.28		9.89	
Solids						
Via						
2/20/25	—		57.0 @ 5.1%		62.0 @ 6.2%	
2/40/25	—		47.5 @ 9.5%		45.0 @ 9.0%	
			~~Premix had~~ ~~odd appearance~~ - looked like granules dark color emulsion		premix had odd appearance - granules floating through out after homogenization & cooling emulsion appear to be a good emulsion	

SIGNATURE Bennie S. Gupta DATE 8-21 2002
READ AND UNDERSTOOD _____ DATE _____ 20__

PROJECT NAME Diesel, Acid Starch, Diffo GW NOTEBOOK NO. 2542

9/23/02

Objective: Determine the effect of the following modification on EW102 wax emulsion

1. Replace Na Lignosulfate with Diesel
2. Replace pearl starch with C150 acid modified starch
3. Replace (substitute) C165 acid starch for C150
4. Adjust Starch/starch ratio to a 1:1:0
5. 20 minute Borax
6. Reduce the amount of Alkyl Phenol by half
7. Increase wax to 36% and ratio montan and KOH
8. Increase wax to 38% adjust ratio of montan & KOH
9. Replace Diesel with Diffo GW

Procedure: Heat and mix the following material in usual manner

Put thru bench homogenizer at 3500 PSI

	121-1 33% wax Diesel/C150		121-2 33% wax Diesel/C165		121-3 33% wax No Borax		121-4 Diffo GW	
	%	gms	%	gms	%	gms	%	gms
3816 D	33	297	33	297	33	297	33	297
Montage	3.3	29.7	3.3	29.7	3.3	29.7	3.3	29.70
Alkyl Phenol	0.5	4.5	0.5	4.5	0.5	4.5	0.5	4.50
45% KOH	0.75	6.75	0.75	6.75	0.75	6.75	1.0	9.0
Diesel	1.0	9.0	1.0	9.0	1.0	9.0	0.75	6.75
Borax	0.37	3.33	0.37	3.33	0	0	0.37	3.33
C150 starch	1.6	14.4	—	—	1.6	14.4	1.6	14.4
C165 starch	—	—	1.6	14.4	—	—	—	—
Water	59.10	531.9	59.10	531.9	59.45	535	59.18	532.62
Material	0.4	3.6	0.4	3.6	0.4	3.6	0.4	3.6
	100%	900.18	100	900	100	900	100.1	900.7

SIGNATURE Bonnie S. Zopf DATE 9-23- 2002

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